

REMARKS

The non-final Office Action mailed February 18, 2004, has been reviewed and carefully considered. Claims 1-40 are pending in the application. Claims 1-16 were rejected. Claim 9 was objected to.

Applicant appreciates Examiner's indication of allowability of claims 17-40 at paragraph seven on page six of the Office Action.

In the second paragraph on page 2 of the Office Action, claim 9 was objected to due to certain informalities.

Applicant respectfully traverses the objection to claim 9. However, Applicant has amended claim 9 in accordance with Examiner's suggestion.

In the fourth paragraph on page 3 of the Office Action, claims 1-7 and 9 were rejected under 35 U.S.C. § 102(e) over Dieny (U.S. Publication No. 2002/0061421).

In the sixth paragraph on page 4 of the Office Action, claims 8 and 10-16 were rejected under 35 U.S.C. § 103(a) over Dieny (U.S. Publication No. 2002/0061421).

Applicant respectfully traverses the §§ 102(e) and 103(a) rejections. To establish a prima facie case for rejection under 35 U.S.C. § 102, all the claim limitations must be taught, disclosed or suggested by the cited reference. To establish a prima facie case for rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught, disclosed or suggested by the cited references and evidence of motivation to combine or modify the cited references must be presented. See MPEP §§ 2143.01 and 2143.03. In this instance, neither of the requirements is present and a prima facie rejection fails under both 35 U.S.C. § 102 and 35 U.S.C. § 103(a) because the Office Action does not cite a reference or references that teach, disclose or suggest all the claim limitations of Applicant's application.

The instant application involves a magnetic tunnel junction (MTJ) device that requires "forming a first magnetic layer and a second magnetic layer, at least one of the first and the second magnetic layers including diffusion components selected to adjust one or more properties of the magnetic tunnel junction device; and forming a barrier layer between the first and the second magnetic layers, the barrier layer comprising migrated diffusion components from the at least one magnetic layer, wherein the diffusion components adjust the one or more properties." In the formation of one or more of the magnetic layers diffusion components are included along

with magnetic material.

Dieny, on the other hand, merely teaches two magnetic layers, R and F, and a nonmagnetic layer NM. Dieny states at page 2, paragraph 19, “[t]he structure comprises a stack in the form R/NM/F, where R and NM have the same meaning as hereinbefore and F designates a ferromagnetic layer permitting a diffusion dependent on the spin of the electrons, occurring at the interface NM/F or in the volume of the layer F. Layer F can e.g. be a layer of a transition metal or alloys of transition metals such as permalloy (Ni₈₀Fe₂₀) or the alloy Co₉₀Fe₁₀. ”

Dieny does not discuss including diffusion components to the magnetic layers anywhere. Therefore, Dieny does not teach, disclose or suggest “forming a first magnetic layer and a second magnetic layer, at least one of the first and the second magnetic layers including diffusion components selected to adjust one or more properties of the magnetic tunnel junction device” from the instant application.

Additionally, the instant application requires “diffusion components selected to adjust one or more properties of the magnetic tunnel junction device.” Thus, it is the diffusion components that adjust the properties of the MTJ device.

From above, but more particularly, Dieny states, “F designates a ferromagnetic layer permitting a diffusion dependent on the spin of the electrons.” Electron diffusion does not adjust one or more properties of the MTJ device. Rather, electron diffusion is a property that is controlled by the direction of the spin of electrons.

Therefore, Dieny does not teach, disclose or suggest that diffusion components are “selected to adjust one or more properties of the magnetic tunnel junction device,” from Applicant’s application.

Applicant submits that the § 103(a) rejection should be removed because the Office Action does not provide a reason why one would modify Dieny. Only broad conclusory statements have been made regarding the use of Dieny for forming an MTJ device without providing evidence of motivation of why one skilled in the art would have been motivated to modify Dieny to arrive at the presently claimed invention. Furthermore, Applicant has reviewed Dieny and cannot find a teaching, disclosure or suggestion for modifying the reference to achieve the claimed limitations. The MPEP indicates that evidence of the reasons one of ordinary skill in the art would have been motivated to select the references and combine them

should be specifically identified and shown by some objective teaching in the prior art leading to the modification. *See MPEP § 2106.* In the present instance, the Office Action has neither indicated reasons why one skilled in the art would be motivated to modify Dieny, nor provided any evidence of factual teachings, suggestions or incentives from the prior art that lead to the modification. Therefore, Appellant submits that the § 103(a) rejection is improper and should be removed.

The § 102 rejection is improper and should be withdrawn because Dieny does not teach, disclose or suggest all of the limitations of Applicant's application. With respect to the § 103(a) rejection, each of the dependent claims rejected depend directly, or indirectly, from an independent claim which is patentably distinct for the reasons set forth above. According to MPEP § 2143.03, if an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. Accordingly, Applicant requests that the § 103(a) rejection be withdrawn.

Dependent claims 2-16 are also patentable over the references because they incorporate all of the limitations of the corresponding independent claims. Further, dependent claims 2-16 recite additional novel elements and limitations. Applicant reserves the right to argue independently the patentability of these additional novel aspects. Therefore, Applicant respectfully submits that dependent claims 2-16 are patentable over the cited references.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicant, David W. Lynch, at 651-686-6633 Ext. 116.

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